The Importance of Wildlife to Canadians

An Executive Overview of the Recreational Economic Significance of Wildlife

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Published by the Canadian Wildlife Service
Environment Canada with the co-operation
and financial support of provincial govern-
ment wildlife branches

Cat. No. CW66-76/1985E
ISBN 0-662-14371-X

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Acknowledgements

Several people have provided very useful suggestions and comments that have assisted the successful completion of this report. We should like to thank the following persons: G. Kerr, J. Cinq-Mars, J.R. Rousseau, J. Foley, T. Lash, H. Boyd, W. Prescott (Environment Canada), J. Marshall (Agriculture Canada), M. Bédard, N. Miller (Statistics Canada), P. Chau (Tourism Canada), P. Boxall, M. Melnyk (Government of Alberta), R. Ruhr (Government of Manitoba), J.L. Ducharme (Gouvernement du Québec), J.L. Knetsch (Simon Fraser University), W.E. Phillips, W.L. Adamovicz (University of Alberta).

Preface

Abundant natural resources brought many early explorers and settlers to Canada during the 16th and 17th centuries. Wildlife was one of the cornerstones of Canada's early economic development and the fur industry launched the country into international trade.

The role that wildlife resources play has changed considerably since these early years yet they continue to occupy an important economic place in the daily lives of a surprisingly large number of Canadians and remain a drawing force for international tourism to this country. This report serves to document the economic recreational significance of wildlife resources in Canada during 1981. The results should be regarded as underestimates of the present economic significance of wildlife because of inflation that has occurred since the data were collected and because several important wildlife-related activities are excluded from this report. The exceptions include, among others, subsistence utilization of wildlife by natives, commercial fur values, and recreational utilization by non-residents of Canada, as well as various option and existence values associated with wildlife.

The findings presented reflect the developing interest of Canada's governmental and non-governmental wildlife agencies in the socio-economic underpinnings of wildlife conservation. This report is based on information gathered by Statistics Canada under the sponsorship of the annual Federal-Provincial Wildlife Conference.

This is the 3rd in a series of publications on *The Importance of Wildlife to Canadians*. Copies of earlier publications on *Highlights of the 1981 National Survey (1983)* and *A User's Guide to the Methodology of the 1981 National Survey (1985)* may be obtained from the Canadian Wildlife Service or provincial government wildlife agencies.

Summary

Canadian wildlife resources are highly valuable to the nation. The 15.5 million people (84% of the Canadian population) who participate in wildlife-related recreational activities in a given year receive benefits that they declare to be worth $800 million annually. The annual enjoyment provided to those participants is equivalent to a capitalized economic value of $7.8 billion.

The expenditures that participants make on wildlife-related recreational activities amount to $4.2 billion. These expenditures provide a significant stimulus to the Canadian economy in terms of Gross Business Production ($8.8 billion), and Gross Domestic Product ($5.2 billion). This economic stimulus supports 185 000 jobs during the year and provides federal and provincial governments across Canada with tax revenues worth nearly $2 billion. Similar findings are presented for the nine provinces sponsoring this study.

These indicators of economic significance of wildlife are conservative because they exclude, among other factors, commercial and subsistence utilization of wildlife resources, and recreational utilization by non-residents of Canada. These findings are based on a comprehensive survey of the Canadian population in 1981 and on analyses conducted by Statistics Canada.

Introduction

The purpose of this report is to: 1) show the economic value of the benefits received by the people who participate in wildlife-related recreational activities; and 2) describe the economic impacts that result from the expenditures by those participants. The report is organized into three sections. Section 1 explains the concepts used in determining the economic significance of wildlife and shows how these concepts were measured. Section 2 presents the results of the economic analysis for Canada as a whole. Section 3 contains charts that summarize the economic results for Canada and the nine provinces that sponsored the analysis.

A forthcoming technical publication (Jacquemot *et al.*)[1] will explain the data, models and assumptions that underlie the present report. The analysis that follows is based on data collected by Statistics Canada in a survey sponsored by the annual Federal-Provincial Wildlife Conference. The survey, which questioned approximately 100 000 Canadians sampled from across the country (excluding the Yukon, N.W.T., and Indian Reserves), is the largest and most comprehensive of its kind undertaken in Canada to date. Details of the objectives of the survey, definitions of terms, questionnaire and sample design, and the statistical reliability of the results are documented in Filion *et al.* (1985)[2].

In this report wildlife is defined to include birds, mammals and other wild animals in a natural environment, but not fish, which have been covered in separate studies. Wildlife-related recreational activities include hunting, primary non-consumptive trips[3], incidental encounters[4], residential activities[5], and indirect activities[6].

1 Jacquemot, A., Reid, R., Filion, F.L. (In prep.). The Importance of Wildlife to Canadians; The Recreational Economic Significance of Wildlife. Canadian Wildlife Service, Ottawa.

2 Filion, F.L., Weisz, G., Collins, B. 1985. The Importance of Wildlife to Canadians; A User's Guide to the Methodology of the 1981 National Survey. Canadian Wildlife Service, Ottawa.

3 A trip away from the place of residence taken primarily to find wildlife and to watch, feed, photograph, or study them.

4 A trip taken primarily for business or pleasure during which wildlife watching, feeding, photographing, or studying occurs.

5 Feeding, watching, studying, and photographing wildlife around the place of residence.

6 Reading or watching films about wildlife, purchasing wildlife art or crafts, visiting zoos, game farms, or museums of natural history.

Section 1.

What we mean by "Economic Significance"

Wildlife-related recreational activities generate two types of economic benefits: 1) direct benefits which are received by those who participate in wildlife-related activities; and 2) indirect benefits resulting from the impacts of the expenditures on the Canadian economy.

1.1

Direct Benefits

Direct benefits are concerned with the enjoyment or satisfaction received directly by participants in wildlife-related activities. In Figure 1 the left column represents the total amount of enjoyment received by wildlife participants from a given wildlife experience — for hunters it could be the challenge and excitement of stalking game; for bird watchers, the satisfaction of finding a bird species new to them. In order to benefit from this kind of satisfaction it is assumed that wildlife participants are prepared to sacrifice a sum of money that could be used to purchase benefits provided by alternative activities such as golfing, attending a concert, etc. The middle column of Figure 1 represents the total amount of economic benefit received by participants in wildlife-related activities.

The manner in which this willingness-to-pay may be quantified is shown on the right of Figure 1. It is possible to quantify the actual costs that participants incur in order to enjoy wildlife-related activities. However, these costs usually represent only a portion of the total satisfaction received by participants. As a result, costs usually underestimate the total economic benefits received. The net worth of the enjoyment provided by wildlife is correctly expressed by subtracting expenditures actually incurred by participants from the amount of money they would be willing to pay to participate in the wildlife-related activity. This net figure represents the economic value of the enjoyment received from wildlife activities that exceeds the costs incurred. This is sometimes referred to as a "consumer surplus" and is illustrated in the upper part of the third column. The net economic value is used to evaluate the "Direct Benefits" provided to participants in wildlife-related activities.

To evaluate the direct benefits, respondents to the Statistics Canada survey were questioned on their actual costs and then asked what additional amount of money they would have been prepared to pay. In other words, we determined the maximum amount of money beyond which participants felt they would stop doing wildlife-related recreational activities because it was more costly than it was worth. The summation of those responses represents the direct benefits accruing annually to all participants from recreational utilization of wildlife resources.

1.2

Indirect Benefits

Indirect benefits consist of impacts on the economy that occur as a result of the money spent on wildlife-related activities by participants. The total impact on the Canadian economy from these expenditures may be quite substantial and is reflected in economic indicators that show indirect benefits in terms of increased personal income, employment, and government revenue, among others.

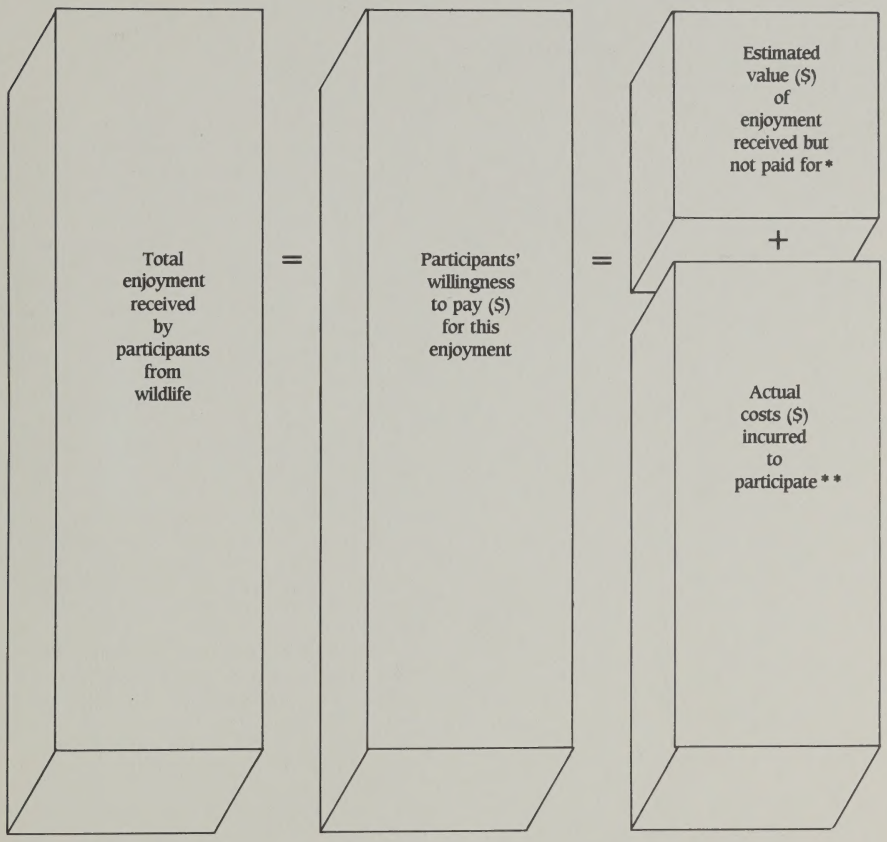
Measuring the economic impacts of wildlife-related recreational activities on the national and provincial economies involved two steps. Data were obtained by Statistics Canada from participants on the expenses they incurred for wildlife-related activities. These data were then processed using the latest econometric models to determine their impacts.

The questionnaire used in the national survey was designed so that annual expenditures would only be registered if they were incurred PRIMARILY for wildlife-related recreational activities. The expenditure-related questions covered seven kinds of costs: expenditures on accommodations, transportation, food, equipment and other items, maintenance and improvement of natural areas for wildlife, and memberships in and donations to wildlife-related organizations.

The effects of the expenditures on the main industries and at various stages of production and distribution of goods and services were computed using the Input-Output models available from Statistics Canada for both provincial and national economies. In the process data from the seven expenditure categories were allocated to 46 appropriate industries.

The analysis revealed that wildlife-related expenditures contribute significantly to Canada's Gross Business Production, Gross Domestic Product, employment, personal income, and government revenue. These indicators of the country's economic performance are explained in Section 2, which contains the principal findings. Many of these economic impacts are thought to be net impacts, to the extent that a significant portion of the spending might not have occurred in a given province or in Canada in the absence of healthy and abundant wildlife populations.

FIGURE 1 – THE ENJOYMENT RECEIVED BY PARTICIPANTS IN WILDLIFE-RELATED RECREATIONAL ACTIVITIES EXPRESSED IN ECONOMIC TERMS



*This value represents the amount of "Direct Benefit" received by participants in wildlife-related activities.

**These expenditures are used to compute "Indirect Benefits" or impacts on the economy.

Section 2.

National Economic Results

The results that follow depict the economic significance of recreational wildlife utilization for the whole of Canada, grouped according to type of economic benefit.

2.1

Direct Benefits

Figure 2 shows the amounts of money spent by participants in wildlife-related recreational activities and the direct benefits they received. Direct benefits received by those involved in hunting and non-hunting activities amount to $0.8 billion. Total direct benefits are equally distributed among hunters and non-hunters. On a per capita basis, those who hunted received direct benefits averaging $232 while those involved in primary non-consumptive trips averaged $101. This is because the latter group outnumbers the former by a ratio of 2 to 1. These benefits are judged to be conservative given the absence of similar findings for "other wildlife activities", which include residential, indirect, and incidental participation.

The figure also shows that expenditures of participants in wildlife-related recreational activities amounted to $4.2 billion. Total expenditures on hunting, residential wildlife activities, and incidental wildlife encounters during trips are almost equivalent to expenditures on primary non-consumptive trips. On a per capita basis the average expenditures were highest for hunters ($658) followed by primary non-consumptive trippers ($581).

The sum of direct benefits and expenditures reveals that participants are willing to pay $5 billion annually for the enjoyment provided by wildlife-related activities.

Figure 3 is a breakdown of the direct benefits and expenditures of hunters for four game categories. By far the largest component is the pursuit of large mammals, with $473 million in expenditures and $164 million in direct benefits, accounting for 40 percent of the total spending made by all hunters and 39 percent of all direct benefits received. If we consider direct benefits as a percentage of expenditure, hunters of waterfowl and small mammals benefited the most.

FIGURE 2 – EXPENDITURES AND DIRECT BENEFITS REPORTED BY CANADIANS PARTICIPATING IN WILDLIFE-RELATED RECREATIONAL ACTIVITIES IN 1981

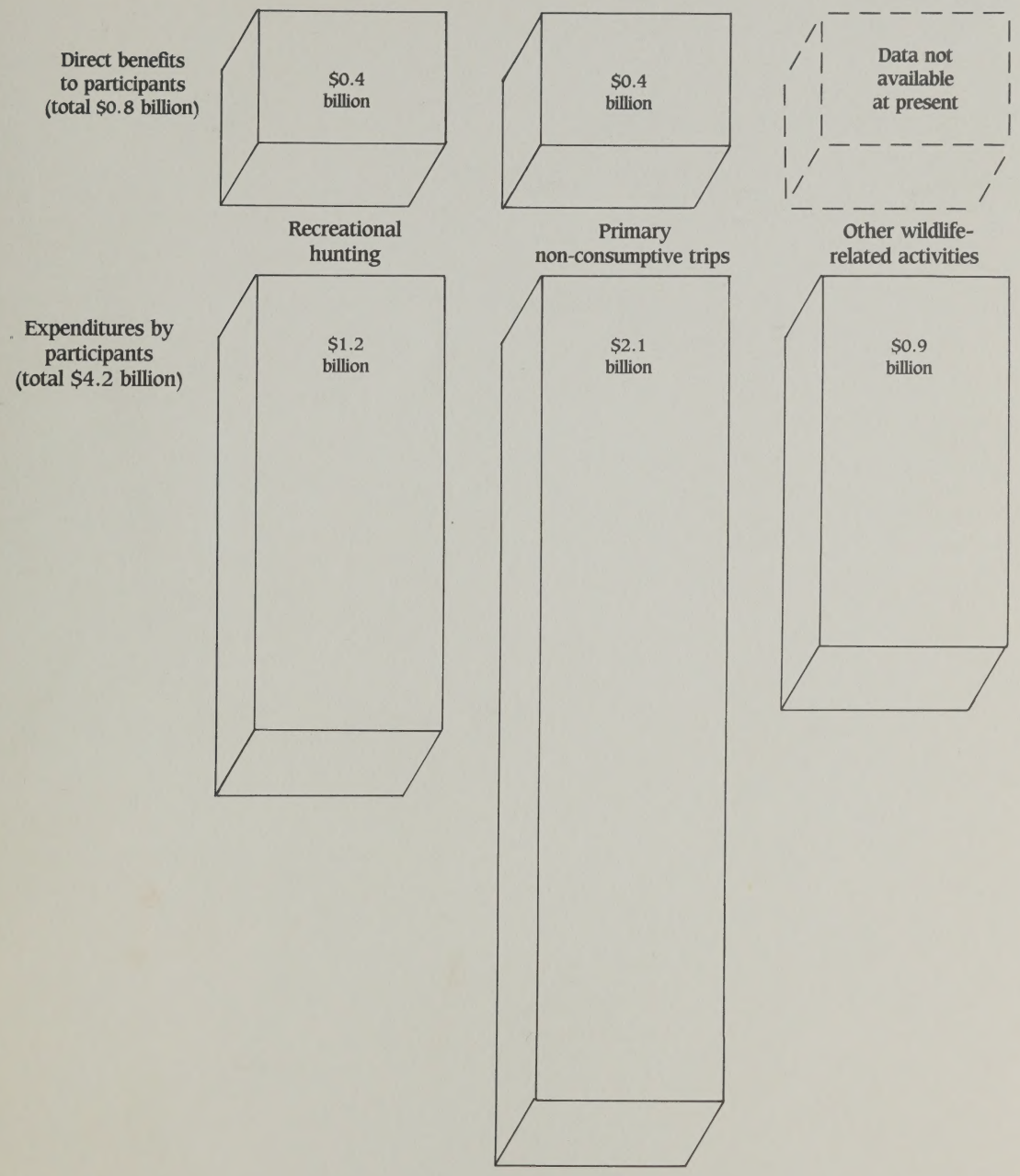


FIGURE 3 – EXPENDITURES AND DIRECT BENEFITS REPORTED BY CANADIANS PARTICIPATING IN RECREATIONAL HUNTING IN 1981

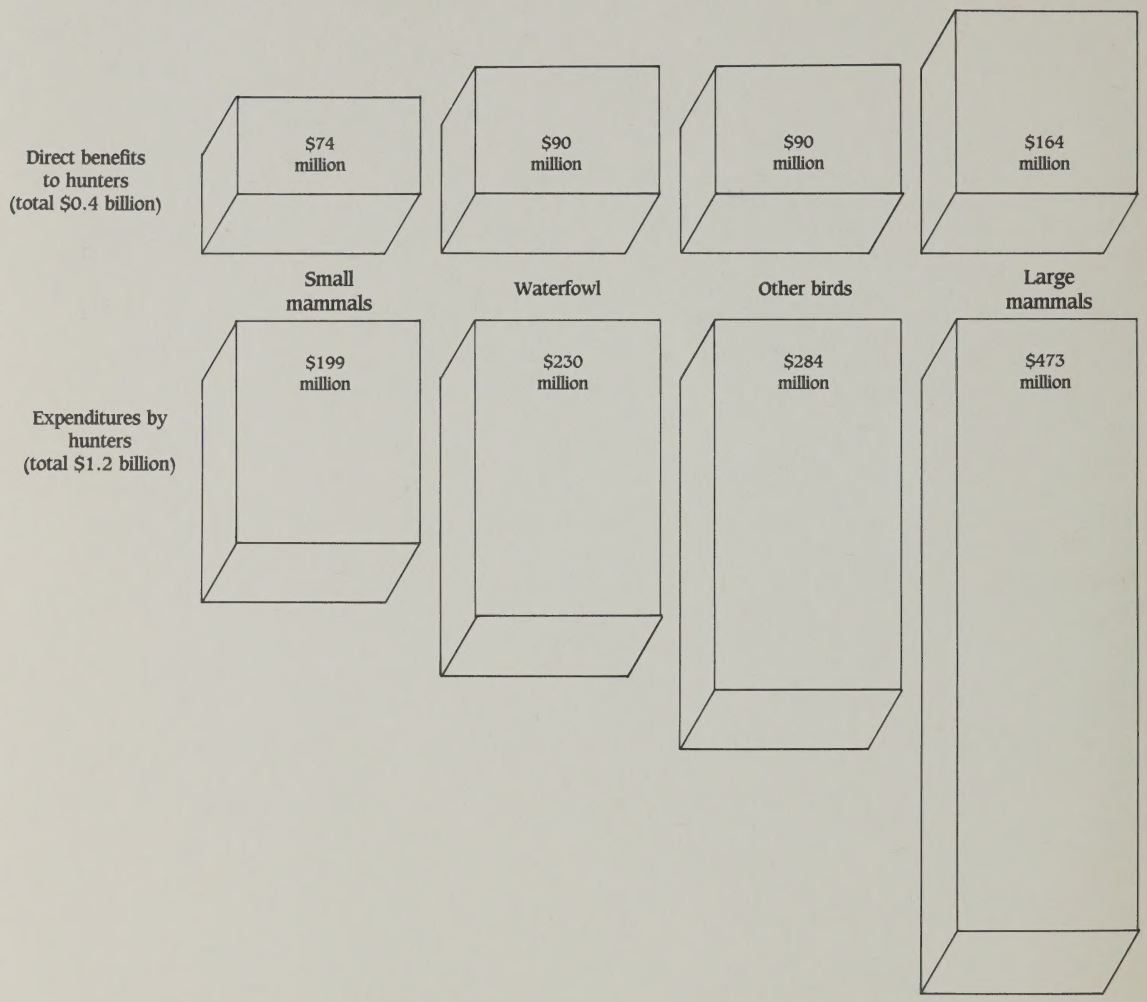
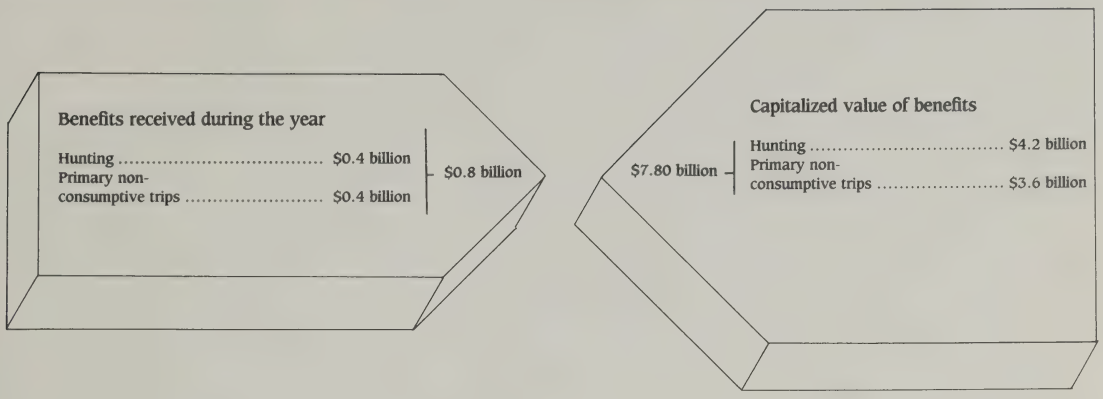


FIGURE 4 – DIRECT BENEFITS RECEIVED BY CANADIANS PARTICIPATING IN WILDLIFE-RELATED RECREATIONAL ACTIVITIES IN 1981



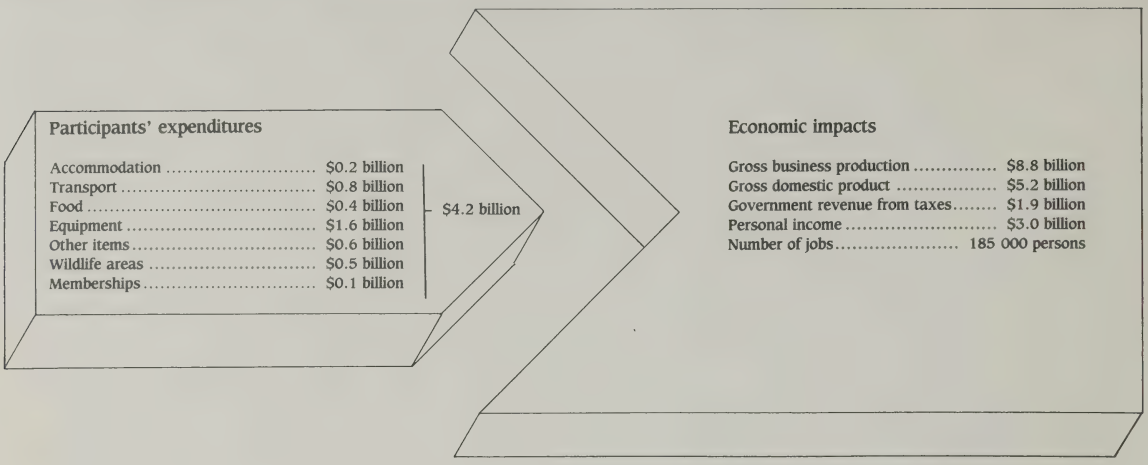
2.1.1

Capitalized Direct Benefits

Effective wildlife management can be expected to ensure the perpetuation of wildlife populations and to allow a sustained yield of direct benefits accruing to the Canadian public. It is possible to quantify the magnitude of this sustained yield of direct benefits in perpetuity by "capitalizing" the economic benefits observed for 1981. The results of the computation are shown in Figure 4. The left portion of the figure reproduces the annual economic benefits reported in Figure 2 for 1981. For capitalization purposes these benefits, valued at $0.8 billion, are assumed to be typical of the benefits enjoyed by Canadians in any typical year after 1981.

The right side of the figure shows the amount of capital in 1981 dollars that would be required to yield an annual $0.8 billion in benefits in perpetuity. This is equivalent to computing what amount of cash would be invested at a fixed interest rate to provide an annual return in interest of $0.8 billion. The capitalized value of these annual benefits is estimated at $7.8 billion. This value is based on an interest or "discount" rate of 10%, which is consistent with the Government of Canada Treasury Board Secretariat (1983). If capitalization rates varying from 5 to 15% were used, the capitalized value of wildlife-related benefits would be seen to range from $15.6 billion to $5.2 billion. These capitalized value provide a conservative estimate of the magnitude of direct benefits that would be lost if wildlife-related recreational activities were allowed to disappear.

FIGURE 5 – EXPENDITURES OF CANADIANS PARTICIPATING IN WILDLIFE-RELATED RECREATIONAL ACTIVITIES AND THEIR IMPACTS ON THE ECONOMY



2.2

Indirect Benefits

The $4.2 billion in expenditures from participants in wildlife-related recreational activities reported in Figure 2 is the basis for assessing indirect benefits to the economy. These expenditures are broken down according to main expenditure categories in the left portion of Figure 5. They represent a broad range of goods and services which permeate numerous sectors of the Canadian economy. Accommodations, transportation, and food constitute the main variable costs, which increase with the amount of participation and account for 33% of all money spent in the pursuit of wildlife-related activities. Equipment purchased primarily to participate in wildlife-related activities represents 38% of total expenditures and constitutes the largest single category.

The economic indicators shown on the right of Figure 5 reveal the magnitude of the economic impacts on the national economy in 1981, including direct, indirect, and induced economic effects.

Wildlife-related expenditures contributed $8.8 billion to Gross Business Production in 1981. This general indicator of economic activity represents both final and intermediate industrial production generated in the business sector. Every dollar spent on wildlife-related activities created $2 of gross production in the business sector.

The expenditures of wildlife participants contributed $5.2 billion to the Gross Domestic Product (GDP at market price) of Canada in 1981. GDP is roughly equivalent to the Gross National Product of Canada, which amounted to $339 billion in 1981. GDP is generally regarded as a good indicator of the performance of the economy because it excludes duplication from the value of production of goods and services at intermediate levels.

The economic impacts reflected in Gross Business Production and the Gross Domestic Product generated 185 000 jobs during 1981. This includes 160 000 wage or salary earning jobs and 25 000 non-paid jobs such as those filled by working owners, family members, and partners.

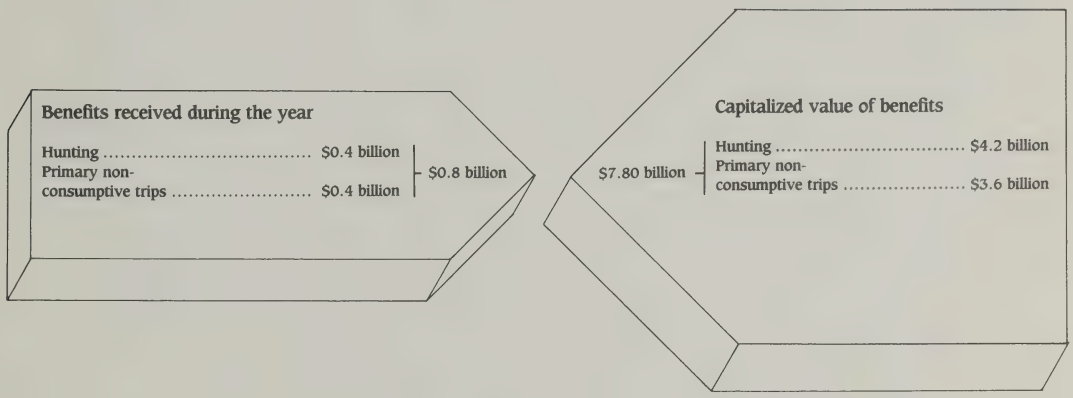
The jobs generated as a result of public participation in wildlife-related activities amounted to $3.0 billion in gross personal income to residents of Canada. This accounts for almost 60% of the amount contributed to the GDP reported above.

Expenditures by participants on wildlife-related economic activities resulted in federal and provincial governments receiving $1.9 billion in revenues from direct and indirect taxes net of subsidies. $1.2 billion (63%) of this revenue came from income taxes on people and corporations.

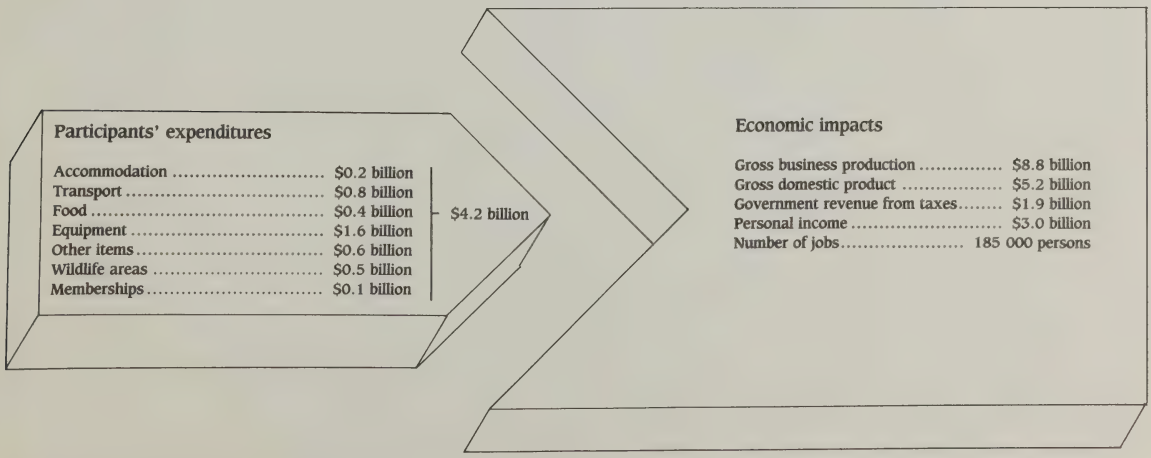
Section 3. Provincial Economic Results

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF CANADA IN 1981*

I. Direct benefits received by participants



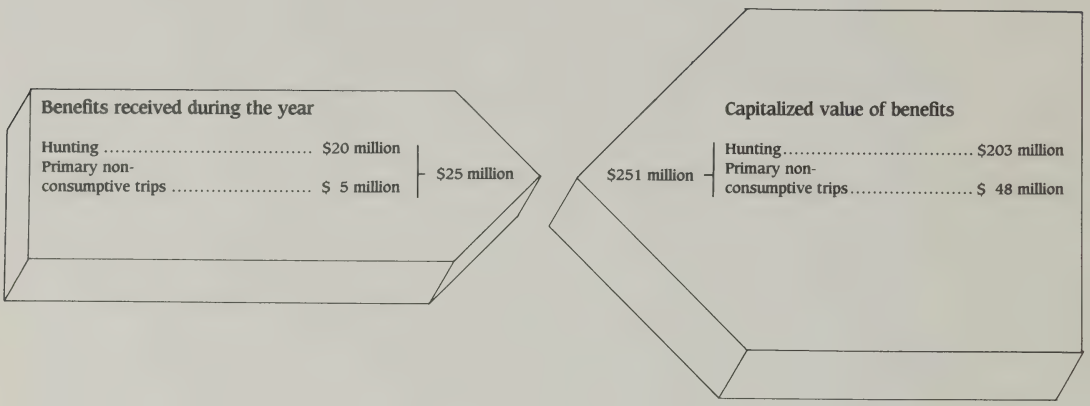
II. Indirect benefits for the economy



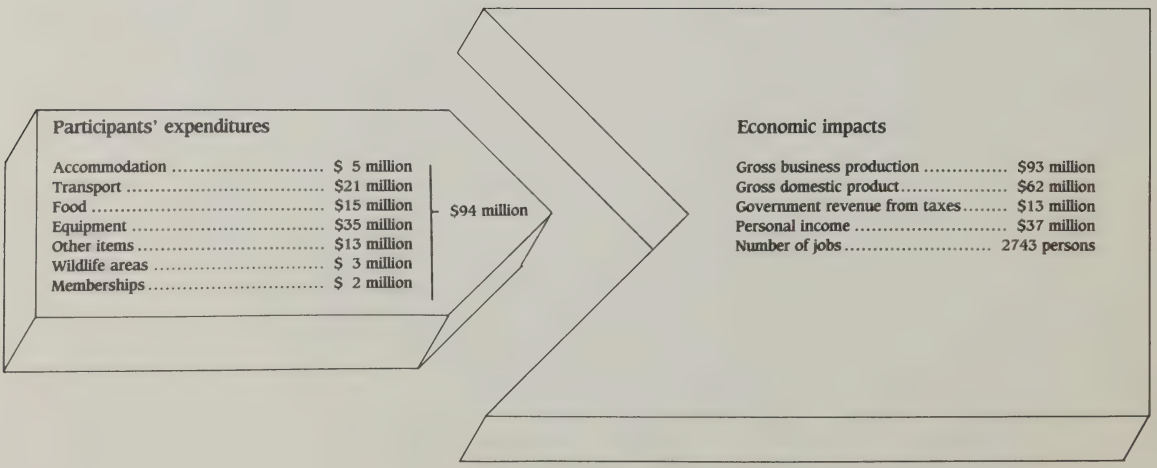
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF NEWFOUNDLAND IN 1981*

I. Direct benefits received by participants



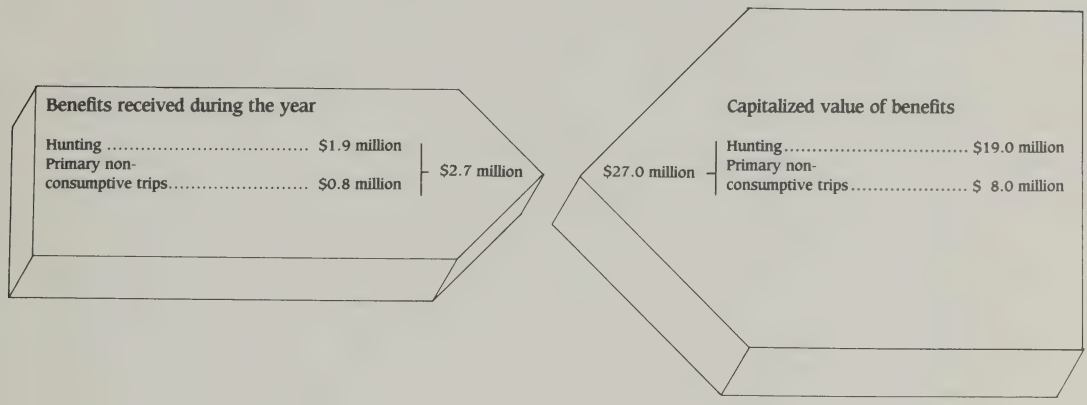
II. Indirect benefits for the economy



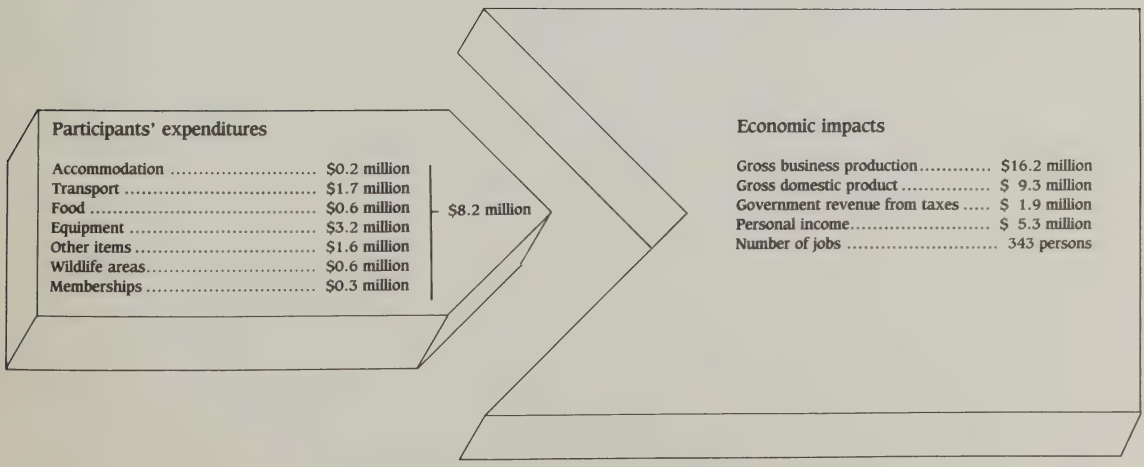
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF PRINCE EDWARD ISLAND IN 1981*

I. Direct benefits received by participants



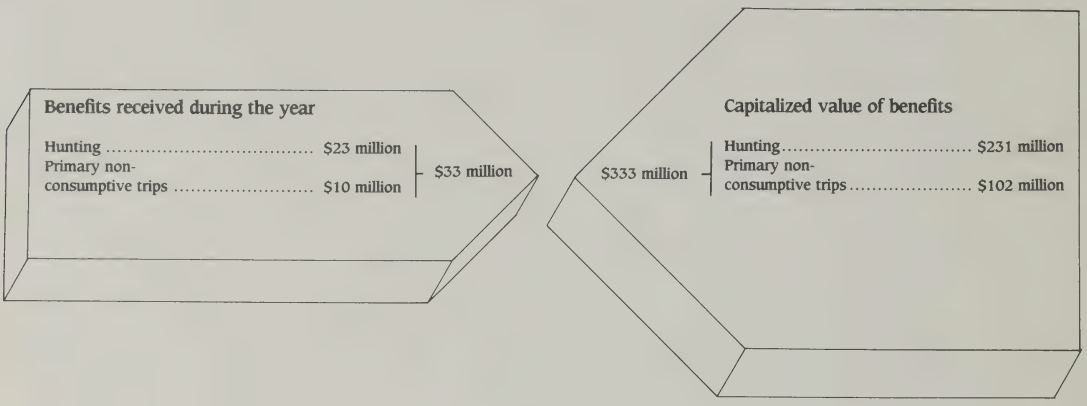
II. Indirect benefits for the economy



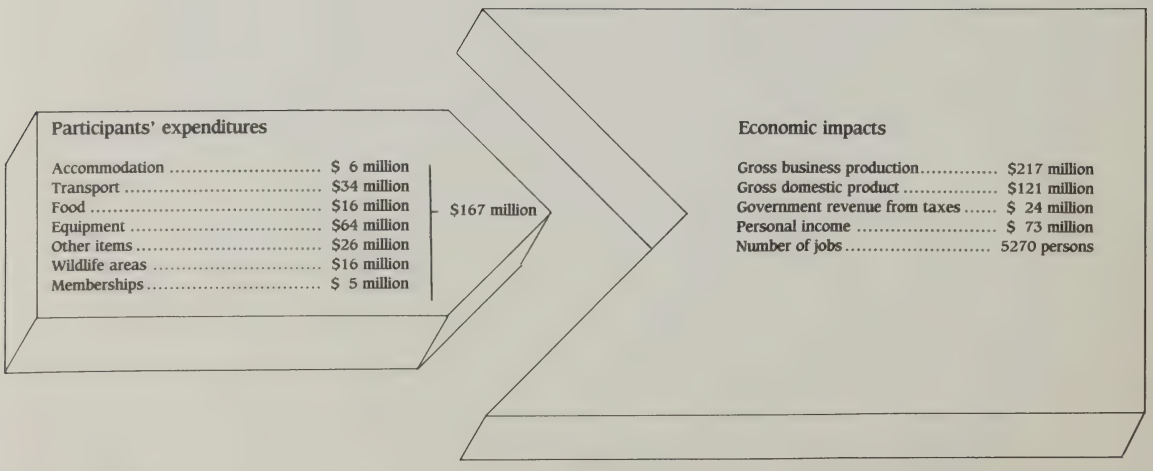
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF NOVA SCOTIA IN 1981*

I. Direct benefits received by participants



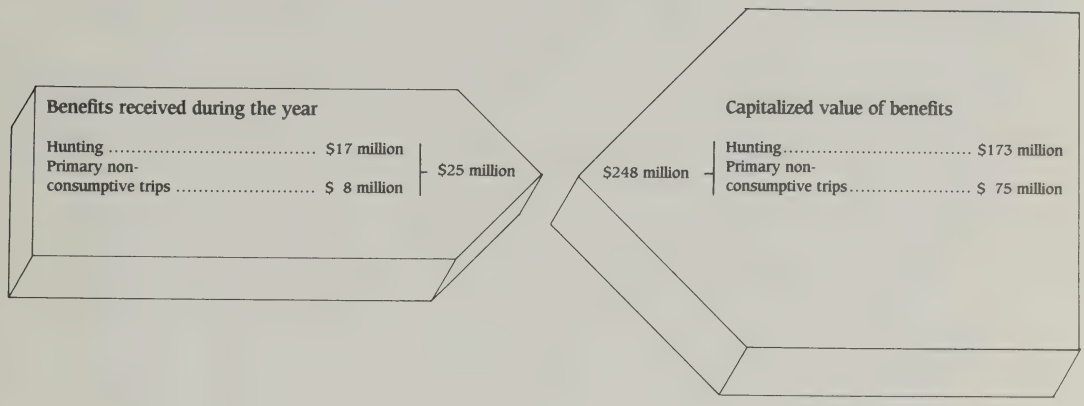
II. Indirect benefits for the economy



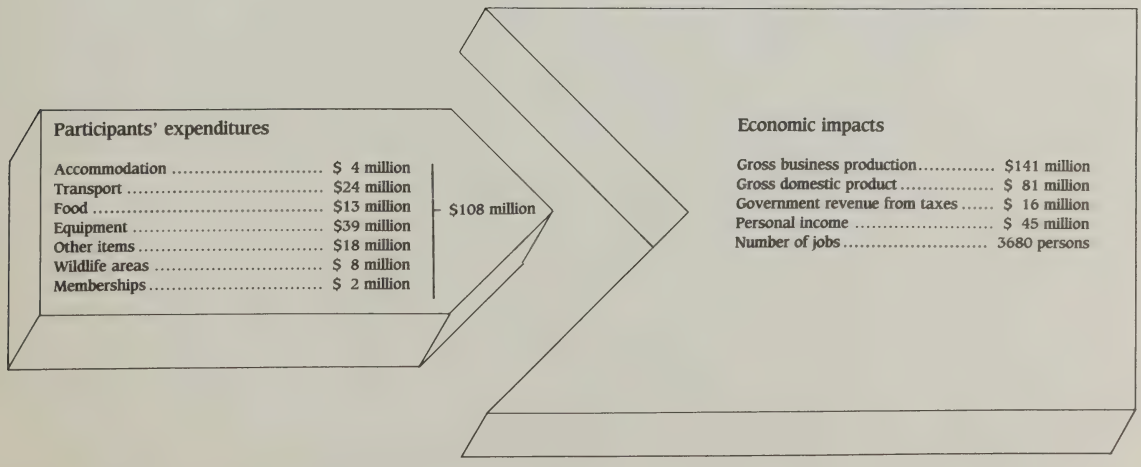
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF NEW BRUNSWICK IN 1981*

I. Direct benefits received by participants



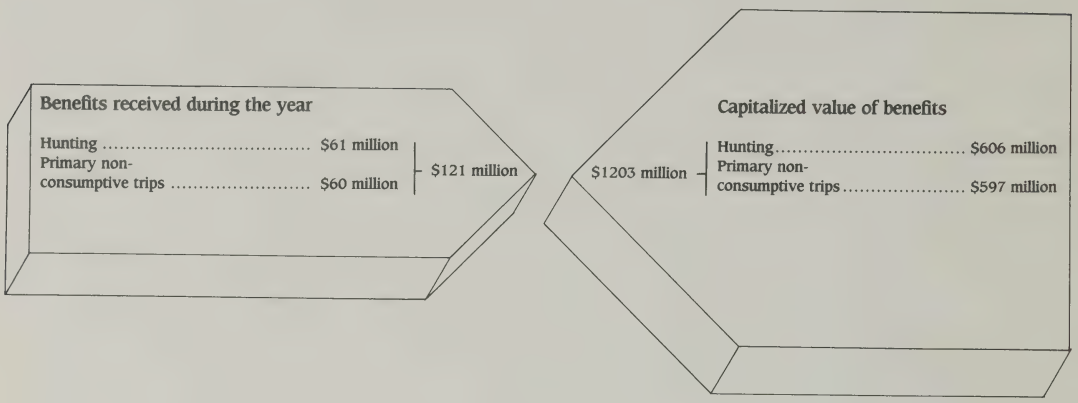
II. Indirect benefits for the economy



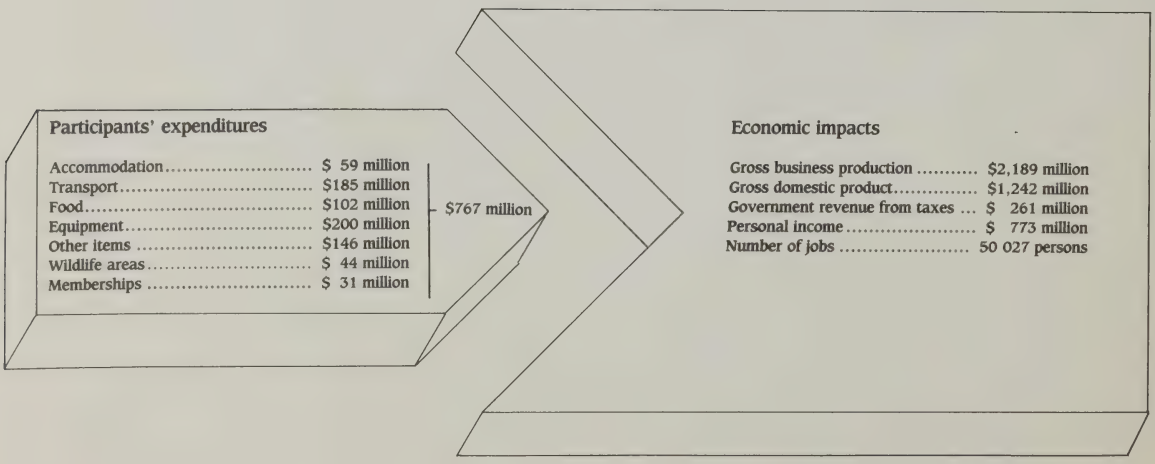
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF QUEBEC IN 1981*

I. Direct benefits received by participants



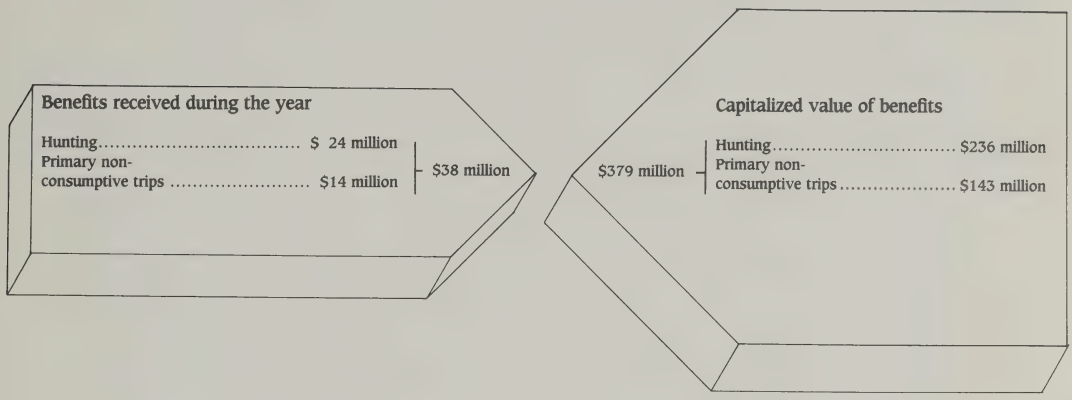
II. Indirect benefits for the economy



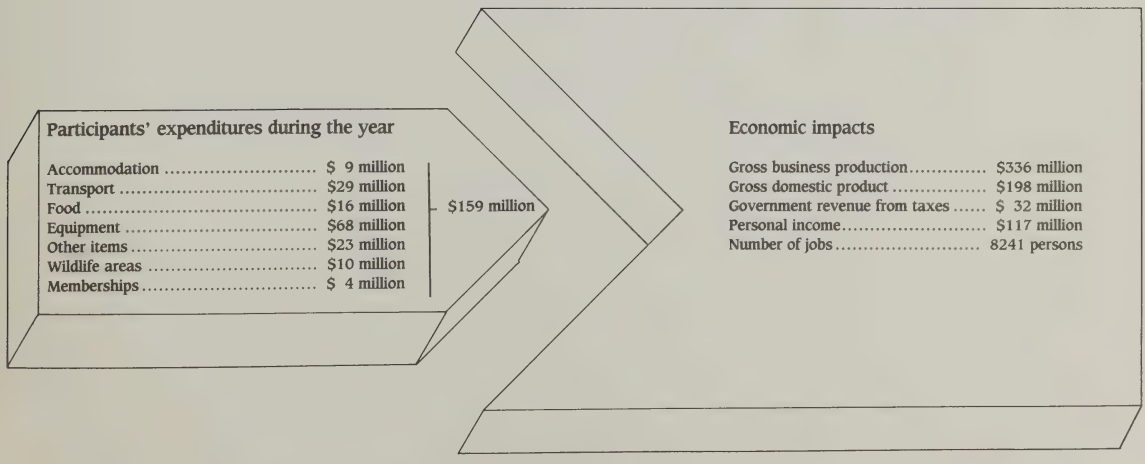
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF MANITOBA IN 1981*

I. Direct benefits received by participants



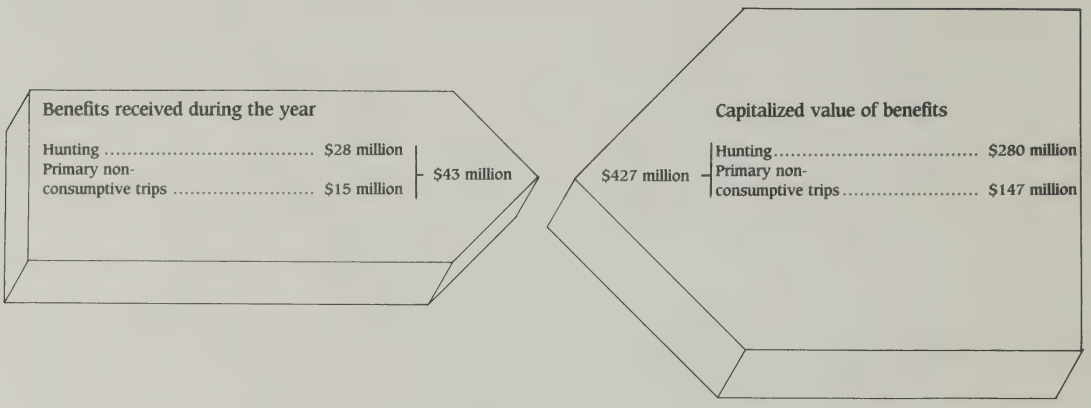
II. Indirect benefits for the economy



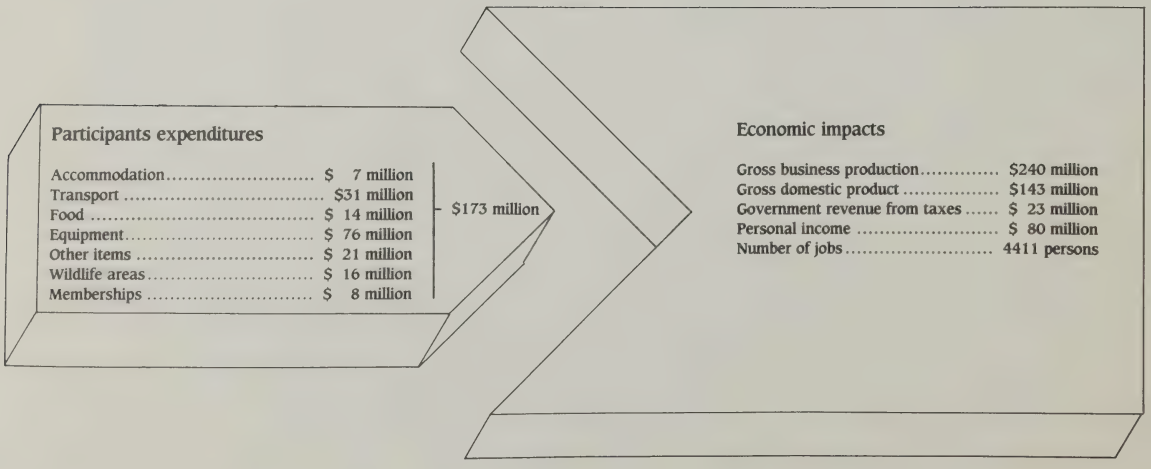
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF SASKATCHEWAN IN 1981*

I. Direct benefits received by participants



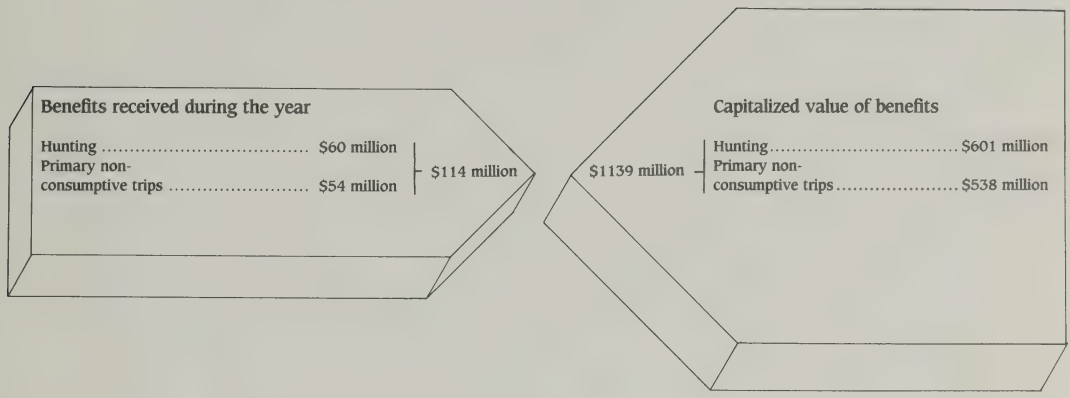
II. Indirect benefits for the economy



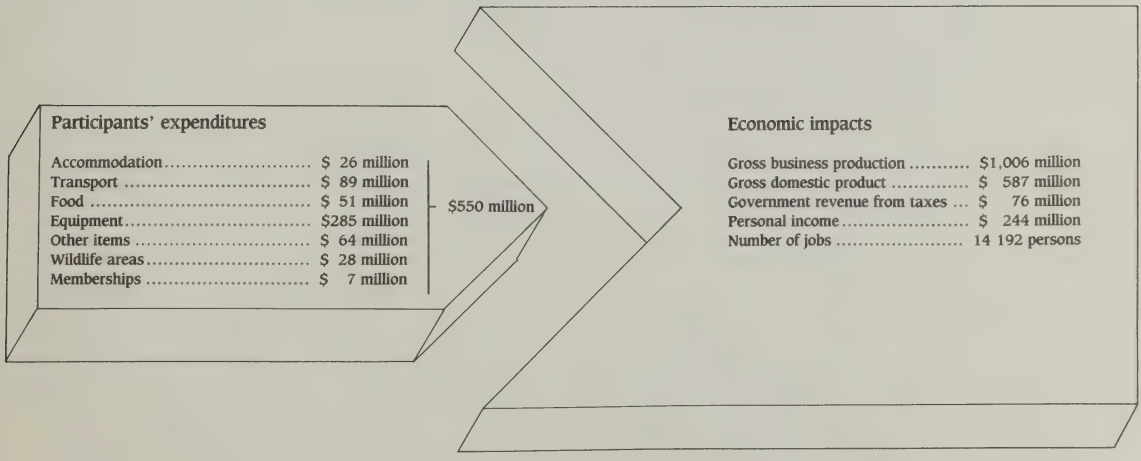
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF ALBERTA IN 1981*

I. Direct benefits received by participants



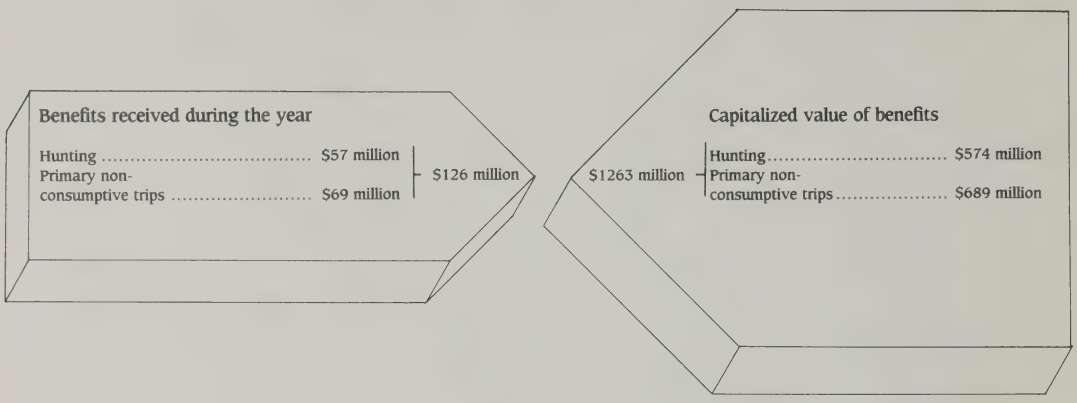
II. Indirect benefits for the economy



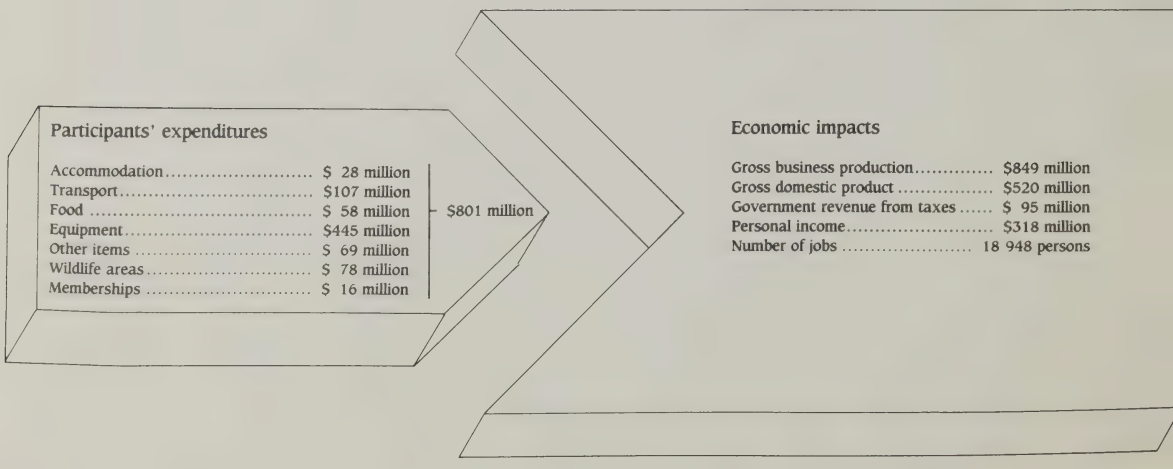
*Key economic terms are explained in Appendix 1.

ECONOMIC BENEFITS OF WILDLIFE-RELATED RECREATIONAL ACTIVITIES BY RESIDENTS OF BRITISH COLUMBIA IN 1981*

I. Direct benefits received by participants



II. Indirect benefits for the economy



* Key economic terms are explained in Appendix 1.

Fold-out for

Conclusion

Appendix 1.

Conclusion

The recreational economic significance of wildlife in Canada constitutes an important asset to the nation. Wildlife provides substantial economic benefits not only to the people who personally enjoy the resource but also to the Canadian economy as a whole. Although the benefits have been quantified only for 1981, sustained wildlife management efforts should be capable of producing benefits of a similar or greater magnitude year after year in perpetuity.

The benefits accrue to a very broad representative cross-section of the Canadian public, some 84% (15.5 million) of the population above 14 years of age. Wildlife resources provide a wide range of social benefits including such diverse aspects as the provision of food to meet subsistence needs and the provision of artistic inspiration to meet aesthetic needs.

To obtain a better appreciation of the significance of these benefits it would be helpful to compare them with other established findings. For example, tourism is a major national industry capable of playing a key role in the revitalization of the national and provincial economies. Wildlife-related activities account for a significant portion of the tourism industry. Because of the nature of wildlife-related activities many of these benefits are felt outside major urban centres and in regions where providing economic stimulus may be most challenging.

The findings provide senior government decision-makers with economic criteria that could be used in evaluating existing wildlife conservation programs, developing new management roles, and charting emerging policies affecting conservation in various parts of the country. The results also serve as a reminder of the significant economic benefits that would be at risk if present wildlife population levels and habitats, and current wildlife conservation efforts across the country, were allowed to decline.

Appendix 1.
Fold-out Guide to Figures in Section 3

Direct Benefits

The annual economic value of the enjoyment received by participants in wildlife-related recreational activities. It is based on people's willingness to pay a sum of money, net of participation costs, to pursue the activities.

Capitalized Value

The amount of capital needed to generate in perpetuity an annual sum of money equivalent to the direct benefits received by participants in 1981 based on a return rate (discount rate) of 10%. It is a conservative estimate of the sum of money required to produce a yearly return sufficient to replace the direct benefits that would be lost if wildlife-related recreational activities were no longer available.

Indirect Benefits

The impacts on the national or provincial economy resulting from the expenditures of participants in wildlife-related recreational activities. They were computed by Statistics Canada and are measured by the five indicators that follow.

Gross Business Production

Measures the additional overall business activity within Canada or the province generated by expenditures. It includes the total value of both final and intermediate goods and services produced in the business sector.

Gross Domestic Product (GDP)

Measures the total value at market price of production of final goods and services within Canada or the province resulting from participants' expenditures. All duplications such as intermediate expenses are eliminated. It is one of the most widely used measures of economic performance.

Government Revenue from Taxes

The provincial figures include all the direct and indirect taxes net of subsidies levied by the provincial and local governments resulting from the economic stimulus generated by wildlife-related activities. The national figure includes all federal, provincial, and local direct and indirect taxes net of subsidies.

Number of Jobs

Represents the number of jobs of undetermined duration supported by participants' expenditures in 1981.

Personal Income

A component of GDP that represents the sum of all incomes received by residents of Canada or the provinces resulting from participants' expenditures.